

REMARKS/ARGUMENTS

Claims 1-6 are pending. By this Amendment, claim 1 is amended and claims 4-6 are added.

The Office Action rejects claim 1 under 35 U.S.C. §102(b) as anticipated by Hawkins et al. If applicable to the twice amended claim 1, this rejection is respectfully traversed.

The implanted regions 32 of Hawkins et al. are so called charge transfer direction biasing implants. These so called charge transfer direction biasing implants extend parallel to the longitudinal direction of the electrodes. A part of the electrodes are used as a mask for implanting dopant ions in a self-aligned implant process with respect to the electrodes. Thus, the implanted regions 32 of Hawkins et al. are elongate and parallel to the electrodes. The reason that Hawkins implant these biasing implants through the gate dielectric is simply that the gate dielectric is necessarily already present because (1) the electrodes are needed for the self-alignment process and (2) the gate dielectric just happens to be present below these electrodes.

Hawkins et al. does not disclose "strip-shaped semiconductor regions running in a first direction" and "strip-shaped electrodes running in a second direction which is substantially perpendicular to the first direction" as specified in claim 1, and therefore contained in claims 2 and 3 dependent thereon. In contrast, Hawkins et al. discloses forming regions 32 to be parallel to the gate electrodes.

Furthermore, Hawkins et al. does not disclose a method "characterized in that the strip-shaped semiconductor regions are not formed in the silicon slice until after the gate dielectric has been provided on the surface of the silicon slice ... and the strip-shaped semiconductor regions are formed in the silicon slice before the strip-shaped electrodes are formed on the gate dielectric" as specified in claim 1 and therefore contained in claims 2 and 3 dependent thereon. In contrast, Hawkins et al. discloses forming regions 32 after gate electrodes are formed.

Accordingly, withdrawal of the rejections of claim 1-3 is earnestly solicited.

The Office Action rejects claim 2 and 3 under 35 U.S.C. §103(a) as being unpatentable over Hawkins et al.

The April 22 Advisory Action asserts the propriety of taking official notice of a fact "that formation of silicon nitride by LPCVD was known prior to the applicant's invention." Actually, the March 12, 2003 Office Action does not mention official notice, but instead refers to a July 31, 2002 Office Action which asserts "that formation of silicon nitride by LPCVD was known

prior to the applicant's invention." Even if, *arguendo*, the assertion of official notice were to be proper, the Office Action (either the March 12, 2003 or the July 31, 2002 OA) still does not establish a *prima facie* case of obviousness.

The July 31, 2002 and March 12, 2003 Office Actions do not assert any motivation to combine a LPCVD process with that of Hawkins et al to enable formation of silicon nitride layer 16. Although the July 31, 2002 Office Action asserts that "it would have been within the scope of one of ordinary skill in the art to combine the known process [LPCVD] with that of Hawkins et al to enable formation of silicon nitride layer 16," the Office Action asserts no motivation for such combination. "The mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination. *In re Mills*, 916 F.2d 680, 16 USPQ2d 1430 (Fed. Cir. 1990)." See M.P.E.P., section 2143.01, page 2100-98, Rev. 1, Feb. 2000, 7th Ed (emphasis in the original).

Instead of asserting a factual basis for motivation to combine, the March 12, 2003 Office Action asserts "that art recognized suitability for an intended purpose is motivation to combine teachings," citing MPEP 2144.07 for this position. To the contrary, MPEP 2144.07 does not suggest substituting art recognized suitability in place of motivation. To do so would vitiate any requirement to show motivation to combine known features and operate as a *de facto* repeal of *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966). MPEP 2144.07 does not reference motivation. It is respectfully submitted that the March 12 Office Action misreads MPEP 2144.07.

Accordingly, Hawkins, et al. does not disclose the method of forming the silicon nitride part of the gate dielectric according to the present invention, namely Low Pressure Chemical Vapor Deposition as specified by claim 2, and therefore contained in claim 3 dependent thereon.

Furthermore, the July 31, 2002 and March 12, 2003 Office Actions do not assert any motivation to alter the thickness of the prior art silicon nitride part of the gate dielectric. Hawkins et al., at one location (see column 9, lines 14-15), discloses that said silicon nitride is between 5 and 30 nm. Hawkins et al. does not disclose, teach or suggest that the thickness should preferably be above 50 nm as specified by claim 3.

Instead of asserting a factual basis for motivation to alter the thickness of the silicon nitride part of the gate dielectric, the March 12, 2003 Office Action asserts "that it would have been an obvious matter of design choice ... to choose these particular dimensions because the

applicant has not disclosed that the dimensions are for a particular unobvious purpose, produce an unexpected result, or are otherwise critical." To the contrary, the thickness of the silicon nitride is disclosed throughout the specification as important to the unexpected results (e.g., small dark currents, free of image fixed pattern noise, etc.). Even so, substitution of common knowledge and common sense (e.g., about a design choice) for a factual finding of motivation is nothing more than a conclusory statement that does not fulfill the Patent and Trademark Office's obligation to set forth reasoned findings. *In re Lee*, 61 USPQ2d 1430 (Fed. Cir. 2002).

Accordingly, Hawkins, et al. does not disclose the method of forming the silicon nitride part of the gate dielectric to a thickness of at least 50 nm as specified by claim 3.

Accordingly, withdrawal of the rejections of claims 2-3 is earnestly solicited.

CONCLUSION

In view of the present amendments and remarks, withdrawal of the rejection of the claims is earnestly solicited. It is respectfully submitted that the present application is in condition for allowance. Prompt reconsideration and allowance of the application are earnestly solicited. Should the examiner believe that any further action is necessary to place the application in condition for allowance, the examiner is invited to contact the undersigned applicant representative at the telephone number listed below.

The Commissioner is hereby authorized to charge any fees (or credit any overpayment) associated with this communication to Deposit Account No. 04-1425.

Respectfully submitted,

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